

10/075390

case



Docket No.: M4065.0505/P505
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:
Kristy A. Campbell et al.

Patent No.: 6,867,064

Issued: March 15, 2005

For: METHOD TO ALTER CHALCOGENIDE
GLASS FOR IMPROVED SWITCHING
CHARACTERISTICS

Certificate
MAY 13 2005
of Correction

**REQUEST FOR CERTIFICATE OF CORRECTION
PURSUANT TO 37 CFR 1.322**

MS Post Issue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentees noted typographical errors which should be corrected.

In U.S. PATENT DOCUMENTS:

Page 2, column 1, "5,335,519 A 8/1994 Bernier" should read:

--5,335,219 8/1994 Ovshinsky et al.--

In OTHER PUBLICATIONS:

Page 4, column 2, "El Bouchairi, B.; Bernede, J.C.; Burgaud, P., Propeties of Ag₂-xSe_{1+x}/n-Si diodes, Thin Solid Films 110 (1983) 107-113." should read:

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--El Bouchairi, B.; Bernede, J.C.; Burgaud, P., Properties of $\text{Ag}_{2-x}\text{Se}_{1+x}/\text{n-Si}$ diodes, Thin Solid Films 110 (1983) 107-113.--

Page 5, column 1, “Feng, X.; Bresser, W.J.; Boolchand, P., Directed evidence for stiffness threshold in Chalcogenide glasses, Phys. Rev. Lett. 78 (1997) 4422-4425.” should read: --Feng, X.; Bresser, W.J.; Boolchand, P., Direct evidence for stiffness threshold in Chalcogenide glasses, Phys. Rev. Lett. 78 (1997) 4422-4425.—

Page 5, column 2, “Hosokawa, S., Atomic and electronic structures of glassy GexSe_{1-x} around the stiffness threshold composition, J. Optoelectronics and Advanced Materials 3 (2001) 199-214.” should read: Hosokawa, S., Atomic and electronic structures of glassy GexSe_{1-x} around the stiffness threshold composition, J. Optoelectronics and Advanced Materials 3 (2001) 199-214.--

Page 6, column 2, “Mitokova, M.; Wang, Y.; Boolchand, P., Dual chemical role of Ag as an additive in chalcogenide glasses, Phys. Rev. Lett. 83 (1999) 3848-3851.” should read: -- Mitkova, M.; Wang, Y.; Boolchand, P., Dual chemical role of Ag as an additive in chalcogenide glasses, Phys. Rev. Lett. 83 (1999) 3848-3851.--

Page 7, column 2, “Yoji Kawamoto et al.-“Ionic Conduction in $\text{As}_2\text{S}_3\text{-Ag}_2\text{S}$, $\text{GeS}_2\text{GeS-Ag}_2\text{S}$ and $\text{P}_2\text{S}_5\text{-Ag}_2\text{S}$ Glasses,” Journal of Non-Crystalline Solids 20 (1976), pgs. 393-404.” should read: -- Yoji Kawamoto et al.-“Ionic Conduction in $\text{As}_2\text{S}_3\text{-Ag}_2\text{S}$, $\text{GeS}_2\text{GeS-Ag}_2\text{S}$ and $\text{P}_2\text{S}_5\text{-Ag}_2\text{S}$ Glasses,” Journal of Non-Crystalline Solids 20 (1976), pgs. 393-404.

The errors were not in the application as filed, and not in the IDS citations (copies attached) as filed by the applicants; accordingly no fee is required.

Patent No.: 6,867,064

Docket No.: M4065.0505/P505

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentees respectfully solicit the granting of the requested Certificate of Correction.

Dated: May 10, 2005

Respectfully submitted,

By 

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**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

Page 1 of 2

PATENT NO. : 6,867,064
APPLICATION NO. : 10/075,390
ISSUE DATE : March 15, 2005
INVENTOR(S) : Kristy A. Campbell et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

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Page 7, column 2, "Yoji Kawamoto et al.-"Ionic Conduction in As₂S₃-Ag₂S, GeS₂GeS-Ag₂S and P₂S₅-Ag₂S Glasses," Journal of Non-Crystalline Solids 20 (1976), pgs. 393-404." should read: -- Yoji Kawamoto et al.-"Ionic Conduction in As₂S₃-Ag₂S, GeS₂GeS-Ag₂S and P₂S₅-Ag₂S Glasses," Journal of Non-Crystalline Solids 20 (1976), pgs. 393-404.--

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PTO/SB/08a/b (08-03)

Approved for use through 07/31/2006. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)			Complete If Known		
			Application Number	10/075,390; Conf. No.: 7206	
			Filing Date	February 15, 2002	
			First Named Inventor	Kristy A. Campbell	
			Art Unit	2815	
			Examiner Name	N. Drew Richards	
Sheet	1	of	3	Attorney Docket Number	M4065.0505/P505

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (If known)			
	A	US 2004/0035401	2/2004	Ramachandran et al.	
	B	US 2003/0212724	11/2003	Ovshinsky et al.	
	C	US 2003/0048744	3/2003	Ovshinsky et al.	
	D	US 2003/0212725	11/2003	Ovshinsky et al.	
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	F	US 3,271,591	9/1966	Ovshinsky	
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	M	US 4,597,162	7/1986	Johnson et al.	
	N	US 4,608,296	8/1986	Keem et al.	
	O	US 4,637,895	1/1987	Ovshinsky et al.	
	P	US 4,646,266	2/1987	Ovshinsky et al.	
	Q	US 4,664,939	5/1987	Ovshinsky	
	R	US 4,668,968	5/1987	Ovshinsky et al.	
	S	US 4,670,763	6/1987	Ovshinsky et al.	
	T	US 4,673,957	6/1987	Ovshinsky et al.	
	U	US 4,678,679	7/1987	Ovshinsky	
	V	US 4,696,758	9/1987	Ovshinsky et al.	
	W	US 4,698,234	10/1987	Ovshinsky et al.	
	X	US 4,710,899	12/1987	Young et al.	
	Y	US 4,728,406	3/1988	Banerjee et al.	
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	A1	US 4,766,471	8/1988	Ovshinsky et al.	
	B1	US 4,769,338	9/1988	Ovshinsky et al.	
	C1	US 4,775,425	10/1988	Guha et al.	
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	E1	US 4,809,044	2/1989	Pryor et al.	
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	G1	US 4,843,443	6/1989	Ovshinsky et al.	
	H1	US 4,845,533	7/1989	Pryor et al.	
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	K1	US 5,128,099	7/1992	Strand et al.	
	L1	US 5,159,661	10/1992	Ovshinsky et al.	
	M1	US 5,166,758	11/1992	Ovshinsky et al.	
	N1	US 5,177,567	1/1993	Klersy et al.	
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	P1	US 5,335,219	8/1994	Ovshinsky et al.	
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	S1	US 5,406,509	4/1995	Ovshinsky et al.	

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>			Complete If Known		
			Application Number	10/075,390	
			Filing Date	February 15, 2002	
			First Named Inventor	Kristy A. Campbell	
			Group Art Unit	2818	
			Examiner Name	Not Yet Assigned	
Sheet	4	of	8	Attorney Docket Number	M4065.0505/P505

		silicon/nanodisperse metal (SIMAL) system-Films of unique electronic properties, J. Non-Cryst. Solids 198-200 (1996) 829-832.	
	CV1	El Bouchairi, B.; Bernede, J.C.; Burgaud, P., Properties of Ag ₂ -xSe _{1+x/n} -Si diodes, Thin Solid Films 110 (1983) 107-113.	
	CW1	El Gharras, Z.; Bourahla, A.; Vautier, C., Role of photoinduced defects in amorphous Ge _x Se _{1-x} photoconductivity, J. Non-Cryst. Solids 155 (1993) 171-179.	
	CX1	El Ghrandi, R.; Calas, J.; Galibert, G.; Averous, M., Silver photodissolution in amorphous chalcogenide thin films, Thin Solid Films 218 (1992) 259-273.	
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	CZ1	El-kady, Y.L., The threshold switching in semiconducting glass Ge ₂₁ Se ₁₇ Te ₆₂ , Indian J. Phys. 70A (1996) 507-516.	
	CA2	Elliott, S.R., A unified mechanism for metal photodissolution in amorphous chalcogenide materials, J. Non-Cryst. Solids 130 (1991) 85-97.	
	CB2	Elliott, S.R., Photodissolution of metals in chalcogenide glasses: A unified mechanism, J. Non-Cryst. Solids 137-138 (1991) 1031-1034.	
	CC2	Elsamanoudy, M.M.; Hegab, N.A.; Fadel, M., Conduction mechanism in the pre-switching state of thin films containing Te As Ge Si, Vacuum 46 (1995) 701-707.	
	CD2	El-Zahed, H.; El-Korashy, A., Influence of composition on the electrical and optical properties of Ge ₂₀ BixSe _{80-x} films, Thin Solid Films 376 (2000) 236-240.	
	CE2	Fadel, M., Switching phenomenon in evaporated Se-Ge-As thin films of amorphous chalcogenide glass, Vacuum 44 (1993) 851-855.	
	CF2	Fadel, M.; El-Shair, H.T., Electrical, thermal and optical properties of Se ₇₅ Ge ₇ Sb ₁₈ , Vacuum 43 (1992) 253-257.	
	CG2	Feng, X.; Bresser, W.J.; Boolchand, P., Direct evidence for stiffness threshold in Chalcogenide glasses, Phys. Rev. Lett. 78 (1997) 4422-4425.	
	CH2	Feng, X.; Bresser, W.J.; Zhang, M.; Goodman, B.; Boolchand, P., Role of network connectivity on the elastic, plastic and thermal behavior of covalent glasses, J. Non-Cryst. Solids 222 (1997) 137-143.	
	CI2	Fischer-Colbrie, A.; Bienenstock, A.; Fuoss, P.H.; Marcus, M.A., Structure and bonding in photodiffused amorphous Ag-GeSe ₂ thin films, Phys. Rev. B 38 (1988) 12388-12403.	
	CJ2	Fleury, G.; Hamou, A.; Viger, C.; Vautier, C., Conductivity and crystallization of amorphous selenium, Phys. Stat. Sol. (a) 64 (1981) 311-316.	
	CK2	Fritzsche, H., Optical and electrical energy gaps in amorphous semiconductors, J. Non-Cryst. Solids 6 (1971) 49-71.	
	CL2	Fritzsche, H., Electronic phenomena in amorphous semiconductors, Annual Review of Materials Science 2 (1972) 697-744.	
	CM2	Gates, B.; Wu, Y.; Yin, Y.; Yang, P.; Xia, Y., Single-crystalline nanowires of Ag ₂ Se can be synthesized by templating against nanowires of trigonal Se, J. Am. Chem. Soc. (2001) currently ASAP.	
	CN2	Gosain, D.P.; Nakamura, M.; Shimizu, T.; Suzuki, M.; Okano, S., Nonvolatile memory based on reversible phase transition phenomena in telluride glasses, Jap. J. Appl. Phys. 28 (1989) 1013-1018.	
	CO2	Guin, J.-P.; Rouxel, T.; Keryvin, V.; Sangleboeuf, J.-C.; Serre, I.; Lucas, J., Indentation creep of Ge-Se chalcogenide glasses below T _g : elastic recovery and non-Newtonian flow, J. Non-Cryst. Solids 298 (2002) 260-269.	
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	CQ2	Gupta, Y.P., On electrical switching and memory effects in amorphous chalcogenides, J. Non-Cryst. Sol. 3 (1970) 148-154.	

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			First Named Inventor	Kristy A. Campbell	
			Group Art Unit	2818	
			Examiner Name	Not Yet Assigned	
Sheet	5	of	8	Attorney Docket Number	VI4065.0505/P505

	CR2	Haberland, D.R.; Stiegler, H., New experiments on the charge-controlled switching effect in amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 408-414.	
	CS2	Haifz, M.M.; Ibrahim, M.M.; Dongol, M.; Hammad, F.H., Effect of composition on the structure and electrical properties of As-Se-Cu glasses, J. Apply. Phys. 54 (1983) 1950-1954.	
	CT2	Hajto, J.; Rose, M.J.; Osborne, I.S.; Snell, A.J.; Le Comber, P.G.; Owen, A.E., Quantization effects in metal/a-Si:H/metal devices, Int. J. Electronics 73 (1992) 911-913.	
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	CV2	Hajto, J.; McAuley, B.; Snell, A.J.; Owen, A.E., Theory of room temperature quantized resistance effects in metal-a-Si:H-metal thin film structures, J. Non-Cryst. Solids 198-200 (1996) 825-828.	
	CW2	Hajto, J.; Owen, A.E.; Snell, A.J.; Le Comber, P.G.; Rose, M.J., Analogue memory and ballistic electron effects in metal-amorphous silicon structures, Phil. Mag. B 63 (1991) 349-369.	
	CX2	Hayashi, T.; Ono, Y.; Fukaya, M.; Kan, H., Polarized memory switching in amorphous Se film, Japan. J. Appl. Phys. 13 (1974) 1163-1164.	
	CY2	Hegab, N.A.; Fadel, M.; Sedeek, K., Memory switching phenomena in thin films of chalcogenide semiconductors, Vacuum 45 (1994) 459-462.	
	CZ2	Hirose, Y.; Hirose, H., Polarity-dependent memory switching and behavior of Ag dendrite in Ag-photodoped amorphous As ₂ S ₃ films, J. Appl. Phys. 47 (1976) 2767-2772.	
	CA3	Hong, K.S.; Speyer, R.F., Switching behavior in II-IV-V ₂ amorphous semiconductor systems, J. Non-Cryst. Solids 116 (1990) 191-200.	
	CB3	Hosokawa, S., Atomic and electronic structures of glassy GexSe _{1-x} around the stiffness threshold composition, J. Optoelectronics and Advanced Materials 3 (2001) 199-214.	
	CC3	Hu, J.; Snell, A.J.; Hajto, J.; Owen, A.E., Constant current forming in Cr/p+a-Si:H/V thin film devices, J. Non-Cryst. Solids 227-230 (1998) 1187-1191.	
	CD3	Hu, J.; Hajto, J.; Snell, A.J.; Owen, A.E.; Rose, M.J., Capacitance anomaly near the metal-non-metal transition in Cr-hydrogenated amorphous Si-V thin-film devices, Phil. Mag. B. 74 (1996) 37-50.	
	CE3	Hu, J.; Snell, A.J.; Hajto, J.; Owen, A.E., Current-induced instability in Cr-p+a-Si:H-V thin film devices, Phil. Mag. B 80 (2000) 29-43.	
	CF3	Iizima, S.; Sugi, M.; Kikuchi, M.; Tanaka, K., Electrical and thermal properties of semiconducting glasses As-Te-Ge, Solid State Comm. 8 (1970) 153-155.	
	CG3	Ishikawa, R.; Kikuchi, M., Photovoltaic study on the photo-enhanced diffusion of Ag in amorphous films of Ge ₂ S ₃ , J. Non-Cryst. Solids 35 & 36 (1980) 1061-1066.	
	CH3	Iyetomi, H.; Vashishta, P.; Kalia, R.K., Incipient phase separation in Ag/Ge/Se glasses: clustering of Ag atoms, J. Non-Cryst. Solids 262 (2000) 135-142.	
	CI3	Jones, G.; Collins, R.A., Switching properties of thin selenium films under pulsed bias, Thin Solid Films 40 (1977) L15-L18.	
	CJ3	Joullie, A.M.; Marucchi, J., On the DC electrical conduction of amorphous As ₂ Se ₇ before switching, Phys. Stat. Sol. (a) 13 (1972) K105-K109.	
	CK3	Joullie, A.M.; Marucchi, J., Electrical properties of the amorphous alloy As ₂ Se ₅ , Mat. Res. Bull. 8 (1973) 433-442.	
	CL3	Kaplan, T.; Adler, D., Electrothermal switching in amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 538-543.	
	CM3	Kawaguchi, T.; Maruno, S.; Elliott, S.R., Optical, electrical, and structural properties of amorphous Ag-Ge-S and Ag-Ge-Se films and comparison of photoinduced and thermally induced phenomena of both systems, J. Appl. Phys. 79 (1996) 9096-9104.	
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				Group Art Unit	2818
				Examiner Name	Not Yet Assigned
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CO3	Kawasaki, M.; Kawamura, J.; Nakamura, Y.; Aniya, M., Ionic conductivity of $\text{Ag}_x(\text{GeSe}_3)_{1-x}$ ($0 \leq x \leq 0.571$) glasses, Solid state Ionics 123 (1999) 259-269.
CP3	Kluge, G.; Thomas, A.; Klabes, R.; Grotzschel, R., Silver photodiffusion in amorphous GeSe_{100-x} , J. Non-Cryst. Solids 124 (1990) 186-193.
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CR3	Kolobov, A.V., Lateral diffusion of silver in vitreous chalcogenide films, J. Non-Cryst. Solids 137-138 (1991) 1027-1030.
CS3	Korkinova, Ts.N.; Andreichin, R.E., Chalcogenide glass polarization and the type of contacts, J. Non-Cryst. Solids 194 (1996) 256-259.
CT3	Kotkata, M.F.; Affif, M.A.; Labib, H.H.; Hegab, N.A.; Abdel-Aziz, M.M., Memory switching in amorphous GeSeTi chalcogenide semiconductor films, Thin Solid Films 240 (1994) 143-146.
CU3	Lakshminarayan, K.N.; Srivastava, K.K.; Panwar, O.S.; Dumar, A., Amorphous semiconductor devices: memory and switching mechanism, J. Instn Electronics & Telecom. Engrs 27 (1981) 16-19.
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CW3	Leimer, F.; Stotzel, H.; Kottwitz, A., Isothermal electrical polarisation of amorphous GeSe films with blocking Al contacts influenced by Poole-Frenkel conduction, Phys. Stat. Sol. (a) 29 (1975) K129-K132.
CX3	Leung, W.; Cheung, N.; Neureuther, A.R., Photoinduced diffusion of Ag in GeSe_{1-x} glass, Appl. Phys. Lett. 46 (1985) 543-545.
CY3	Matsushita, T.; Yamagami, T.; Okuda, M., Polarized memory effect observed on Se-SnO_2 system, Jap. J. Appl. Phys. 11 (1972) 1657-1662.
CZ3	Matsushita, T.; Yamagami, T.; Okuda, M., Polarized memory effect observed on amorphous selenium thin films, Jpn. J. Appl. Phys. 11 (1972) 606.
CA4	Mazurier, F.; Levy, M.; Souquet, J.L, Reversible and irreversible electrical switching in $\text{TeO}_2\text{-V}_2\text{O}_5$ based glasses, Journal de Physique IV 2 (1992) C2-185 - C2-188.
CB4	Messoussi, R.; Bernede, J.C.; Benhida, S.; Abachi, T.; Latef, A., Electrical characterization of M/Se structures ($\text{M}=\text{Ni, Bi}$), Mat. Chem. And Phys. 28 (1991) 253-258.
CC4	Mitkova, M.; Boolchand, P., Microscopic origin of the glass forming tendency in chalcogenides and constraint theory, J. Non-Cryst. Solids 240 (1998) 1-21.
CD4	Mitkova, M.; Kozicki, M.N., Silver incorporation in Ge-Se glasses used in programmable metallization cell devices, J. Non-Cryst. Solids 299-302 (2002) 1023-1027.
CE4	Mitkova, M.; Wang, Y.; Boolchand, P., Dual chemical role of Ag as an additive in chalcogenide glasses, Phys. Rev. Lett. 83 (1999) 3848-3851.
CF4	Miyatani, S.-y., Electronic and ionic conduction in $(\text{AgxCu}_{1-x})_2\text{Se}$, J. Phys. Soc. Japan 34 (1973) 423-432.
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CJ4	Nakayama, K.; Kitagawa, T.; Ohmura, M.; Suzuki, M., Nonvolatile memory based on phase transitions in chalcogenide thin films, Jpn. J. Appl. Phys. 32 (1993) 564-569.
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CL4	Nang, T.T.; Okuda, M.; Matsushita, T.; Yokota, S.; Suzuki, A., Electrical and optical parameters of GeSe_{1-x} amorphous thin films, Jap. J. App. Phys. 15 (1976) 849-853.
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Substitute for form 1449A/B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	10/075,390; Conf. No.: 7206
				Filing Date	February 15, 2002
				First Named Inventor	Kristy A. Campbell
				Art Unit	2815
				Examiner Name	N. Drew Richards
Sheet	3	of	3	Attorney Docket Number	M4065.0505/P505

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		Country Code ³	Number ⁴ -Kind Code ⁵ (if known)			

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NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CAA	Yoji Kawamoto et al. - "Ionic Conduction in As ₂ S ₃ -Ag ₂ S, GeS ₂ -GeS-Ag ₂ S and P ₂ S ₅ -Ag ₂ S Glasses," Journal of Non-Crystalline Solids 20 (1976), pgs. 393-404.	

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